assigned, co-pending U.S. Patent Application No. 08/841,423, entitled "THE COMBINATORIAL SYNTHESIS OF NOVEL MATERIALS", filed April 22, 1997, the complete disclosure of which is incorporated herein by reference for all purposes. --

IN THE CLAIMS:

PLEASE **DO NOT** ENTER THE AFTER FINAL AMENDMENT THAT WAS FILED ON SEPTEMBER 24, 1999.

Please cancel claims 3, 4, 16-23, 26-38 and 58-61, without prejudice.

Please amend the claims as follows:

1. (Twice Amended) An apparatus for applying components of one or more source materials to at least two predefined regions an a substrate, the apparatus comprising:

one or more source materials, wherein the source materials are inorganic compounds or electro-polymerizable monomers; and

a potential assembly for applying a spatially varying electrical potential across the substrate, the spatially varying electrical potential causing the components of the source materials to undergo chemical reaction at the predefined regions and thereby to deposit different amounts of the components simultaneously at the predefined regions, wherein the components of the at least two of the predefined regions are different.

9. (Twice Amended) The apparatus of claim [2] 1, further comprising an ionic solution in contact with the substrate.

12. (Twice Amended) The apparatus of claim 1, further comprising an enclosure housing at least a portion of the substrate therein, wherein at least a portion of the substrate is immersed in a bath of the source material.

39. (Twice Amended) An apparatus for screening a plurality of materials for an electrical property, the apparatus comprising:

an array, wherein the plurality of materials correspond to a plurality of predefined regions on the array; the plurality of materials being different from each other by the composition of the materials and the plurality of materials are each polymers or inorganic compounds [or polymers];

a plurality of electrodes, wherein the plurality of electrodes correspond to the plurality of predefined regions; and

a detector coupled to the plurality of electrodes for measuring the electrical property of each of the plurality of materials.

40. (Twice Amended) The apparatus of claim [39] 43, wherein the electrical property is AC impedence.

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43. (Amended) An apparatus for making an array of materials by electrochemical deposition and for screening members of the array of materials for an electrical property, [the array of materials having a plurality of members,] the apparatus comprising:

a substrate having spatially addressable electrodes corresponding to [predefined regions for receiving] the members of the array of materials;

[spatially addressable electrodes located adjacent the predefined regions, the spatially addressable electrodes electrically connected to the predefined regions];

at least one other electrode, the at least one other electrode and the spatially addressable electrodes adapted to apply an independently variable electrical potential between [each of] the spatially addressable electrodes [predefined regions] and the at least one other electrode so that when the substrate and the at least one other electrode contact[s] a solution containing ions, the ions undergo chemical reaction at the spatially addressable electrodes [predefined regions] forming the array of materials, wherein [in which] at least two members of the array of materials [are] have different compositions; and

a detector for measuring the electrical property of the members of the array of materials, with the spatially addressable electrodes electrically connected to the detector.

45. (Amended) The apparatus of claim 43, wherein [the] ends of the spatially addressable electrodes are disposed on a surface of the substrate.

46. (Amended) The apparatus of claim 43, wherein the substrate is a resistive material that provides a substantially continuous electrical potential that varies between adjacent spatially addressable electrodes [predefined regions].

47. (Amended) The apparatus of claim 43, further comprising reference electrodes having ends located adjacent [the] ends of the spatially addressable electrodes;

wherein the spatially addressable electrodes, the at least one other electrode and the reference electrodes are adapted to apply the independently variable electrical potential between each of the spatially addressable electrodes [predefined regions] and the at least one other electrode.

50. (Amended) The apparatus of claim 43, wherein the ions undergo redox reaction at the spatially addressable electrodes [predefined regions] forming the array of materials [in which at least two members of the array of materials are different].

51. (Amended) An apparatus for making an array of materials by electrochemical deposition, the array of materials having a plurality of members, the apparatus comprising:

a first chamber having an inlet for supplying a first ionic solution to the first chamber and an outlet for removing the first ionic solution from the first chamber;

a second chamber having an inlet for supplying a second ionic solution to the second chamber and an outlet for removing the second ionic solution from the second chamber;

a permeable membrane separating the first chamber from the second chamber, the permeable membrane allowing ions to migrate between the first chamber and the second chamber;

a substrate located in the first chamber, the substrate having predefined regions for receiving members of the array of materials;

working electrodes having ends located adjacent the predefined regions, the ends of the working electrodes electrically connected to the predefined regions;

reference electrodes having ends located adjacent the ends of the working electrodes; and

a counter electrode located in the second chamber;

wherein the working electrodes, the reference electrodes and the counter electrode are adapted to apply an independently variable electrical potential between each of the predefined regions and the counter electrode so that ions undergo chemical reaction at the predefined regions of the substrate to form the array of materials in which at least two members of the array of materials have [are] different compositions.

~~57~~. (Amended) The apparatus of claim ~~51~~, wherein the ions undergo redox reaction at the predefined regions of the substrate to form the array of materials [in which at least two members of the array of materials are different].

Please add the following claims:

-- 62. The apparatus of claim 39, wherein the array comprises more than 9 different materials.

-- 63. The apparatus of claim 39, wherein the array comprises at least 50 different materials.

-- 64. The apparatus of claim 39, wherein the array comprises at least 100 different materials.

-- 65. The apparatus of claim 39, wherein the electrical property being screened for is superconductivity.

-- 66. The apparatus of claim 39, wherein the electrical property being screened for is critical current.